OFFICIAL JOURNAL

VOL. I JULY 1976 NO. 4

CALIFORNIA HISTORICAL RADIO SOCIETY

"KOA?!"

CALIFORNIA HISTORICAL RADIO SOCIETY INC

635 Phelan Avenue
San Jose, CA. 95112

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For membership correspondence address the Treasurer, James Cirner, 13366 Pastel Lane, Mt. View, CA. 94040. Articles and non-commercial ads for the journal should be submitted to the Editor, Kenneth Miller, 1950 Cooley Avenue, Palo Alto, CA. Historical data for copying or donation should be sent to the Historian, Larry LaDuc, Jr., 484 Arleta Avenue, San Jose, CA. 95128.

THE SOCIETY

The California Historical Radio Society is a non-profit corporation chartered in the state of California, and was formed to promote the interests of California vintage and antique radio enthusiasts. Our goal is to provide the opportunity to exchange ideas and information on the history of radio (in California especially.) We hope to be of service to those interested in such areas as collecting of equipment, literature, and programs, etc., and restoration of early gear. Regular meetings and swap meets are scheduled at least twice a year in the San Jose area, with additional meets planned for Southern California when interest justifies (soon we hope!) We now have 70 members from throughout the state (and a few from out of state.) As we grow so do our benefits to our members. Tell your friends about us!

THE JOURNAL

The Official Journal of the California Historical Radio Society is published quarterly and is furnished free to members. Our first issue was published in September 1975 and copies of early issues are still available; the first issue is $2.00, others are $1.00 each. Articles for the Journal are solicited from all members. Any items of interest, such as restoration hints, information on early radio broadcasts and personalities, anecdotes about the pioneers, etc., will be gratefully accepted. anyone interested in editing a section of the magazine on a full time basis should contact the editor. This can relieve our editor of a great deal of work and insure maximum attention to your area of particular interest.

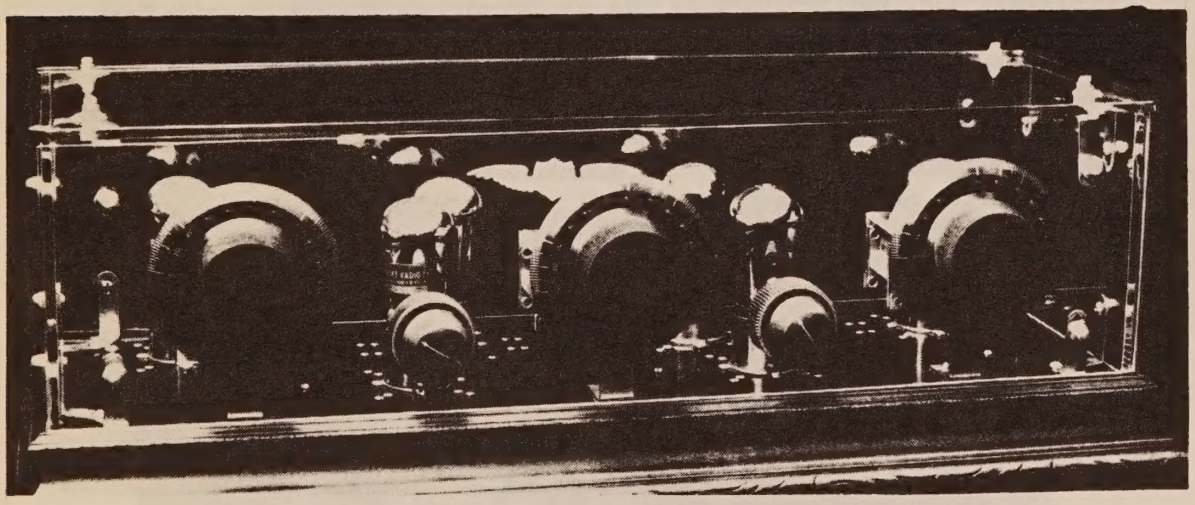
FEATURED SET

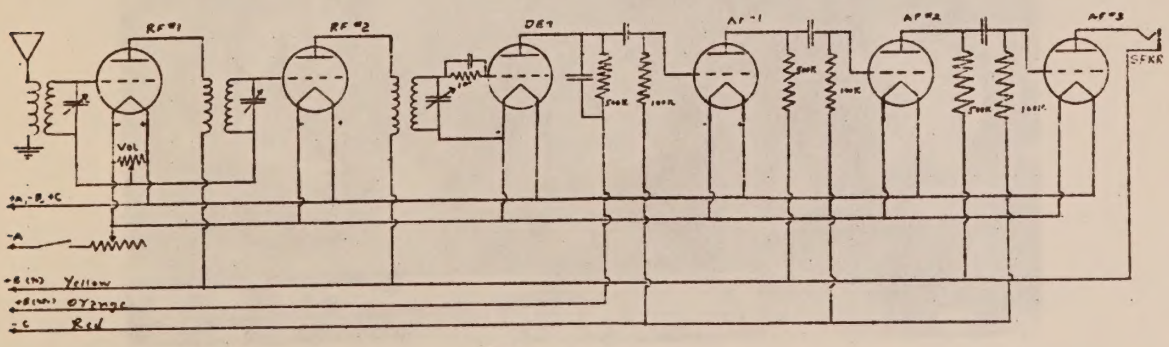
CLEARVIEW SIX

BY PETER BRICKEY

This set was manafactured in 1926 by the Kaess Aircraft Engineering Company. It is an interesting set, not only because the cabinet is composed of 3/16 plate glass but also that the audio section uses resistance coupling. The set uses 6 201a's, 2 as RF amplifiers, 1 as the dector and 3 as AF amplifiers. All coils, resistors and capacitors are mounted inside the base so that all that is exposed are the tube sockets, tunning condensors and the 2 reostats. All exposed metal parts are of brass and the tubes are laid out in such a way that the 4 middle ones form a triangle whose apex points to the company's logo on the back of the case.

I have not been able to find any information on the Kaess Aircraft Engineering Company as they did not seem to be in the radio business for a very long time or perhaps they just did not do any advertising. I would appreciate any information I could get about them.



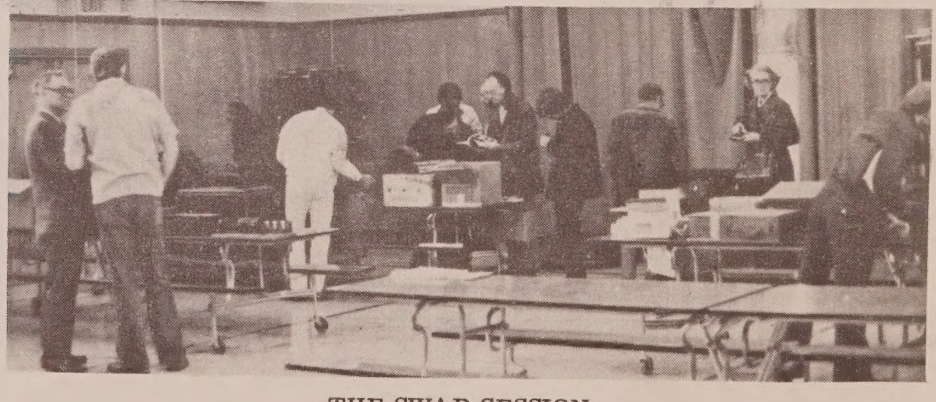


'CLEARVIEW SIX'

OUR SPECIAL GUEST SPEAKER - RAY NEWBY

CHRS SPRING MEET

The spring meet of the California Historical Radio Society was held on April third in San Jose. After the swap session and socializing, everyone listened to a 1945 CBS radio program about the founding of KQW by "Doc" Herrold. The program was engineered by Paul Smith (now a professor at San Francisco State University) who donated the recording to the club. Ray Newby then gave an interesting talk on his experiences with Doc Herrold setting up the worlds first radio "broadcasts" in San Jose. During his presentation he played excerpts from a 1949 CBS program in which Doc Herrold himself gave a short address (Mr. Newby was also a featured guest on that program.) Mr. Newby's talk also covered his experiences as one of the first shipboard radio operators and his later experiences as a test equipment manufacturer. He then presented the club with one of the early test sets he had built. After Mr. Newby's address, awards were presented for the receiver contest, with Jim Cirner taking first for his 1926 Acme Reflex, Joe Horvath second for his Atwater Kent breadboard, and last? but not least, third place went to Gene Rippen for his entry. Jim Cirner then gave an interesting demonstration of the nickel plating techniques he described in the last issue of this bulletin. A good time was had by all and special thanks go out to Ray Newby and his charming wife for making the trip from Stockton to be with us. And, of course, thanks go out for the much appreciated donations to the club.



THE SWAP SESSION

JIM CIRNER EXPLAINS NICKEL PLATING

EVERYONE SOCIALIZES

JOE HORVATH ACCEPTS HIS AWARD

PETER BRICKEY AND LARRY LADUC DO THE JUDGING

COLLECTOR SPOTLIGHT

LANE UPTON

This picture shows a portion of my collection which I have been accumulating since 1969. I try to limit myself to equipment built prior to 1925, where possible. The loudspeaker I am shown holding is a Seafone using a Baldwin driver into a conch shell. My earliest radio equipment dates back to 1918.

In addition to radios and their accessories, I also collect electrical meters and laboratory type instruments. These include items such as : wheatstone bridges, potentiometers, decade boxes, tube testers, etc. My earliest equipment in this group goes back to 1898, with some units still meeting original specifications.

One of the things I find most enjoyable in this hobby is restoration. I am continuously learning new techniques and it seems to be a never-ending challenge, with new problems constantly arising to be solved. Also, the engineering ingenuity shown in this old equipment is of constant amazement.

THE TUBE COLUMN

REJUVINATION OF VACUUM TUBES

By: Lane S. Upton

With the ever increasing scarcity of the old tubes, it is becoming more important that we try to save as many as possible. Over the past two years the author has been experimenting with the rejuvination of these older tube types. This work has been based primarily on present day techniques used at Eimac and on data given in various books published during the 1920's. Using the methods described herein, the author has had approximately 85% success in returning inactive tubes back to useable transconductance. The failures have primarily been due to filaments being burned out during the application of the excessive voltages required. The tubes which failed either had filaments that had been weakened from long hours of operation, or, were marginal at the weld joints. None of these failures were opened for investigation as they are still valuable for display purposes.

The primary failure mode of these older tube types is a loss of electron emission from the filament or cathode. With the wide interelectrode spacings used in these tubes, a short is very rare except in the case of a broken filament wire of where the oxide has flaked from the filament or cathode and has touched the grid. The loss of electron emission typically shows up in the tube tester as a weak tube or one which will not raise the meter needle. If a tube tests normal and does not show any erratic indication on the test meter, no attempt should be made to improve it by rejuvination.

The equipment required for rejuvination is relatively simple. In addition to a tube tester, a variable filament supply is required with a meter of reasonable accuracy for measuring the applied voltage. In place of a separate filament supply, a filament voltmeter may be connected to the tube tester and the filament voltage switch and "line" adjustment used for voltage control. For the thoriated tungsten filaments it is preferable that no grid or plate voltages be applied during rejuvination. With the oxide emitter tube, voltages should be applied during rejuvination. The removal of plate and grid voltages can be readily accomplished by the construction of an adaptor socket with filament connections only. The voltage applied to the filament during rejuvination must be carefully controlled to the values given herein. The accompanying graph shows the results of various voltages applied to a thoriated tungsten filament during rejuvination. It shows that a voltage lower than the recommended value will eventually result in a fairly good tube, while too high a voltage will result in a tube which will remain weak.

Emission loss is generally due to contamination (poisoning) of the emitting surface. The vacuum and the original outgassing of the elements in these older tubes was not near the present day standards, therefore, they contain considerable residual gases. The poor emission usually is the result of either the emitting surface being poor prior to storage, or, immediately upon being heated the filament/cathode was poisoned by the residual gases which had condensed on the emitting surface. The function of rejuvination is to drive off these condensed gases and to replenish the electron emitting layer on the surface of the filament/cathode.

526 11th Ave., Salt Lake City, Utah 84103

Vacuum tubes have essentially three basic types of emitters. These are: pure tungsten, thoriated tungsten, or, a directly or indirectly heated oxide. The type of emitter in a given tube can be determined by its operating color at rated filament voltage. The pure tungsten filament operates bright white, the thoriated tungsten filament runs orange to yellow, while the oxide emitter operates in the dull to bright red region.

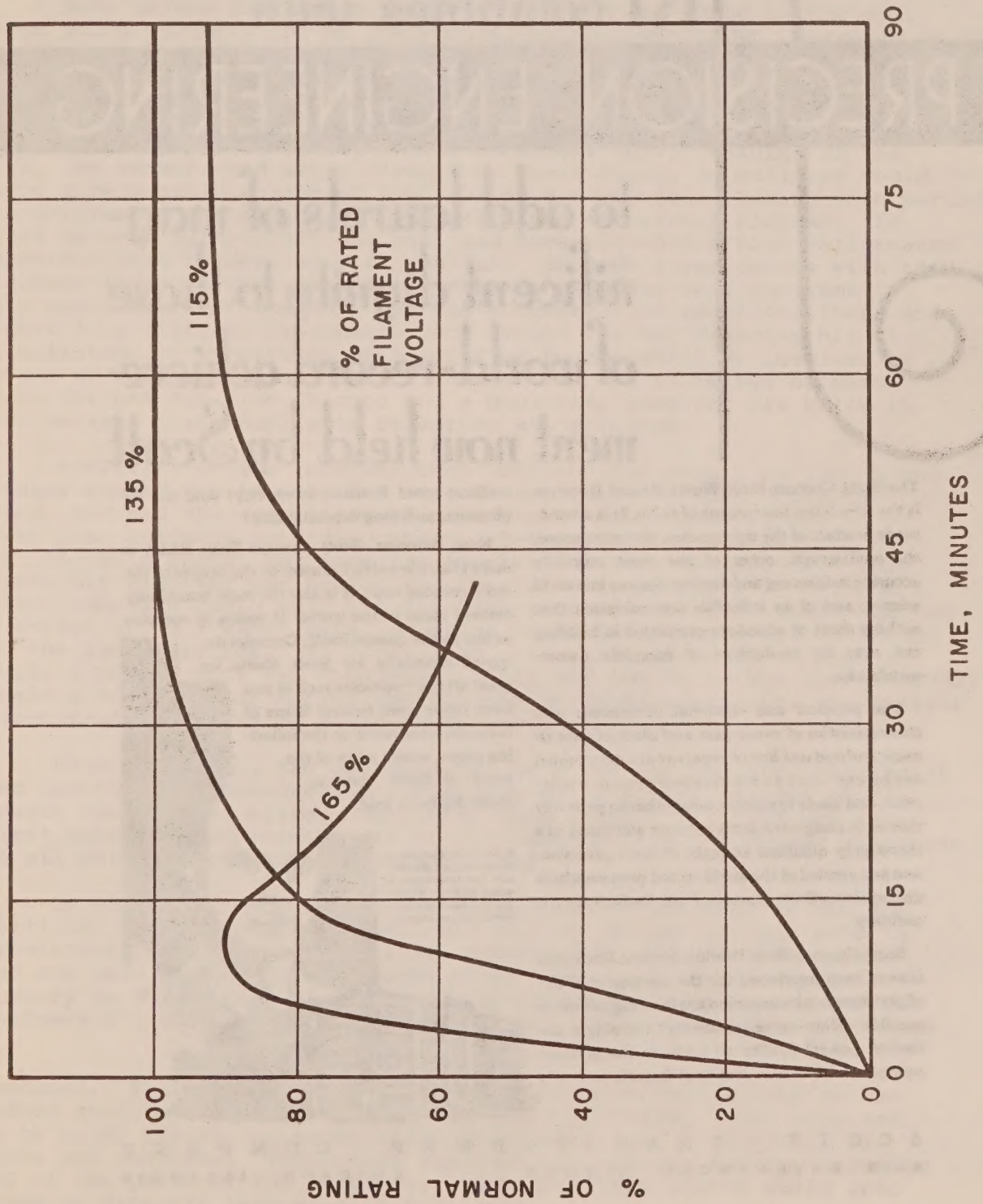
The pure tungsten filament needs little reactivation as its operating temperature makes it self cleaning. Operation at 110% of rated filament voltage for up to 30 minutes should clean them up. This type of filament was used in such tubes as the UV200, UV201, and in many of the transmitting tube types.

The thoriated tungsten filament is probably the major one to be dealt with by the collector. This filament is a composition of tungsten and thorium with the tungsten acting as the heat source while the thorium is the emitting source. This filament was used in tubes such as the UX200A, UX201A, UV99, UX99, UX120, UX210, and in many of the later (and present day) transmitting tubes. Two methods are used for rejuvination of these filaments. If a tube is only weak or gives erratic readings, the first procedure should be tried. If a tube is completely dead (but the filament lights up) then the second procedure should be used. 1) Operate the filament at 135% of rated voltage for 30 minutes. Test the tube, and if the tube has improved but is still not to rating, continue for another hour. If at the end of this time the tube is still not up to specification, use the following procedure. 2) In this procedure the filament is run white hot to strip the emitting surface completely clean, then the surface is restored using the above procedure. Operate the filament for 15 to 20 seconds at 350% of rated voltage with no other voltages applied. Then, operate the tube under the conditions given in the first procedure. Test the tube every 30 minutes, and, if the tube is not up to rating after two hours it has reached the end of its useful life.

NOTE: Do not attempt to test tubes at the end of the first step as there will be no emission.

Typically the oxide emitter consists of a layer of strontium and/or barium oxide deposited on a heated surface. In the directly heated type, this layer is placed directly on the surface of the filament. Typical of this type are the Western Electric tubes such as the VT-1 and VT-2 and the WD11, UX226, and UX280. The indirectly heated cathode is the more modern type of emitter consisting of a metal sleeve with the oxide layer on the exterior and the filament mounted in the interior. The indirectly heated cathodes include the ac heater types such as the 24, 27, and the Kellogg tubes. These tube types should initially be operated at rated filament voltage for at least one hour and then checked for quality and stability. If they still are not satisfactory, then the following procedure should be used. With the tube in the tube tester, increase the filament voltage to 120% of rating while carefully watching the plate current or tube tester meter reading. The meter reading will slowly increase, hit a peak, then start to decrease. At the point of maximum reading, reduce the filament voltage back to rated value. Continue to operate the tube at rated filament voltage for at least four hours, then test. When two tests spaced one hour apart provide the same reading, the tube is rejuvinated as much as is possible.

The rejuvination of the old tubes can be very rewarding especially considering that some of them would otherwise be in the junk box. It does take time for this work as there are no short cuts, but it is something that can be done without constant attendance. While not all the tubes will come up to 100% of rating, at least many tubes can be brought up to the point of being useable. As these old tubes become more scarce this may be the only way we will have of getting the old sets operating.



E. H. SCOTT

ART combines with PRECISION ENGINEERING

to add laurels of magnificent dignity to those of world-record achievement now held by Scott

The Scott Custom-Built World Record Receiver is the *precision* instrument of radio. It is a hand-made product of the micrometer, the microscope, the oscillograph, other of the most infinitely accurate measuring and testing devices known to science, and of an inflexible determination that nothing short of *absolute* perfection in building can ever be productive of complete owner-satisfaction.

The physical and electrical dimensions and characteristics of every part and piece of wire *in each individual Scott receiver* are determined one by one—*not to a tolerance*—but to *exactness*, and made to match one another so perfectly that each completed Scott receiver will stand as a thoroughly qualified example of Scott precision, and as a symbol of the world record prowess which distinguishes Scott Custom-Built Radio from the ordinary.

Scott Custom-Built World's Record Radio has always been purchased for the sterling qualities of performance its precision engineering has made possible—Bare-nerve sensitivity! Seemingly unlimited power! Ability to bring in the greatest number of far distant stations! Superb, perfectly realistic tone! Positive selectivity! And for its absolute, unfailing dependability!

Now, however, Scott Custom-Built Radio is more than the perfect answer to the prayer of the radio-minded man. It is also the most beautifully clothed radio in the world. It comes in consoles as fine as the chassis itself; Consoles designed especially for Scott Radio by great artists—consoles such as you have never seen before! Some of them are illustrated on the following pages, where more of the story of Scott Custom-Built Radio is told.

E. H. Scott, designer of World Record Radio—and the laboratory in which all Scott Receivers are hand-made to laboratory standards.

SCOTT TRANSFORMER COMPANY
4450 RAVENSWOOD AVENUE · CHICAGO, ILLINOIS

The Scott Receiver
By Bob Fabris

There is a segment of the hobby that collects the console radio, and within that segment is a faction that finds the Eitti Scott receivers to be of special interest.

Born in New Zealand in 1887, Eitti Scott emigrated to the U.S. upon being mustered out of the Australian Army after WWI. Drawing on his experiences in the military motor pool, he developed a device to locate trouble in internal combustion engines and sold it to the U.S. Government. Proceeds from the sale were used to set up a laboratory in Chicago. He started to write a column on radio construction hints for the newspapers, drawing on the knowledge he was gaining at the lab. He constructed every circuit he wrote about, so builders would have a reasonable chance of duplicating the results. During this period he originated the pictorial schematic form of circuit diagram. In 1924 he went back to New Zealand, and took with him a high performance superhet that he developed at the lab. He made arrangements with the Chicago stations WGN and WQJ for them to transmit test programs in the early hours of the day. He was successful in receiving these and other long distance broadcasts from around the world during his trip. A multitude of receptions were verified by the stations involved by means of a detailed log that he maintained. An extra set of parts were shipped out from Chicago and a duplicate receiver was built in New Zealand - and duplicate reception was effected.

Publicity on the receiver that followed his return to the United States caused him to make the circuit available to home builders. However, few had the capability to make the IF transformers, and so he went into business providing these. Eventually, he was selling kits of his radio parts, and then the completed radios themselves. This first kit receiver was called the "World's Record Super 9" while the first complete radio sold was the "Shield Grid 9". This radio started a series of "all-wave" sets, covering 20 to 550 meters, and continued to the last thirties. At first, the sets utilized pairs of plug-in coils (RF and OSC) for each band, until the fourth in the series (1932) where a turntable or turret shifted the coils mechanically; and finally electrical switching of fixed coils was perfected.

From the first, the emphasis was on a quality product, hand-built and individually constructed. Starting in 1931, the chasses of all covers were chrome plated over heavy gauge steel. All hardware was first rate and components were of the best quality. A 5-year quarantee on all parts (except tubes) was provided.

In addition, performance was demonstrable, and much of the advertising was based on the continued ability of the various sets to consistently receive DX. In 1933, Scott again went to New Zealand and was able to log Chicago night after night. He would report a summary to telegraph the next day. Other advertising emphasized the custom-built aspect of the units, that is, hand-built instead of mass produced. These sets were individually tuned at the factory to expected conditions at the owner's residence. Display rooms were set up in major cities for prospective customers' use in selection of units and cabinets. These were available in various styles, encasing all of the parts of the receiver. Many sets were custom built into homes or directly into owner's furniture.

As stated, the all-wave series started with a 9-tube superhet, and the tube count gradually increased to twenty-three tubes in the Imperial model of 1935 as various stages or features were added. The "all-wave" designation was then dropped even though the radios were capable of multi-band operation through the 40's, reaching a zenith in the 1937-1941 Philharmonic where six bands were available. The early Philharmonic with thirty tubes operated from 3.7 to 2000 meters, while one band was replaced by fm (42-50 mc) and three more tubes in later models. There were five or six of the forty-tube Quaranta receivers built in 1936.

Two chassis were used in almost all receivers, where the tuner system was placed on a second chassis. Speakers were separately mounted, directly to the cabinetry. The power chassis usually had a full wave rectifier with oversize transformer and filter system, and the output amplifier was usually push-pull, sometimes a parallel push-pull system (with four tubes). Fifteen-inch Jensen speakers (electrodynamic) were usually used, some units had an additional pair of tweeters and a cross-over network for full-range output.

In these sets, sensitivity and selectivity were usually separately adjustable. Tone controls included both treble and bass. A noise limiter, a scratch filter, a volume expander - all were features found on one or another set, each using one or two tubes, adding to the count. Tuning eyes were later featured while early sets had a meter needle visible in the dial area to indicate highest signal strength. Some sets had separate tuning eyes for AM and FM. Early FM was broadcast in the 42 to 50 mc, but some years later the FCC shifted the band to 88 to 108 mc, so Scott built a converter for use withe the older sets. In the pre-war days of TV, sound was separately transmitted, and one band of the Philharmonic was available for that.

One of Scott's direct competitors was McMurdo Silver, an engineer of some note who was the designer at the Silver-Marshall Co., and then for his own McMurdo Silver Co. Advertising by Silver irked Scott who felt that it was misleading. While Silver was a good engineer and designer, apparently his advertising people were able to put forth some questionable material. Scott offered a number of one hundred dollar donations if Silver could verify certain advertising statements, but these were not acted upon. Scott had previously tried to sue Silver over a technical report. The problem disappeared when Scott bought out Silver in 1939.

With the coming of World War II, Scott moved to military radio production and built low radiation receivers (to prevent reception of the oscillator output of a superhet by enemy receivers) for the

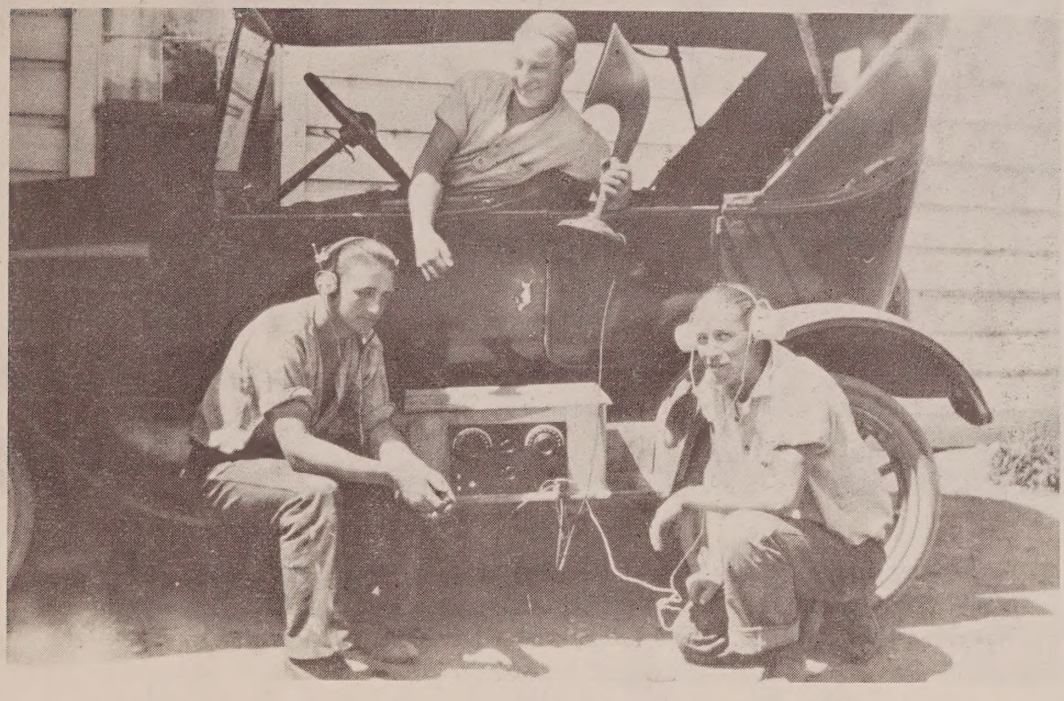
Navy, resulting in an Army/Navy 'E' award. Scott retired from the company in 1945, but production continued and probably climaxed with the 800B in 1946. This unit carried the tradition of excellence forward, and provided the owner with pushbutton control of AM and FM bands. Short wave reception was limited to one band (and phased out of future receivers). Sporting a facade by Walter Dorwin Teague, the units started at $500.00. Remote control was an option carried over from the pre-war Philharmonic, utilizing motor-driven tuning capacitors and volume controls.

A review of the circuit of this set, compared with current 'guidelines' on the purchase of a communication receiver shows that the 800B meets those requirements quite well.

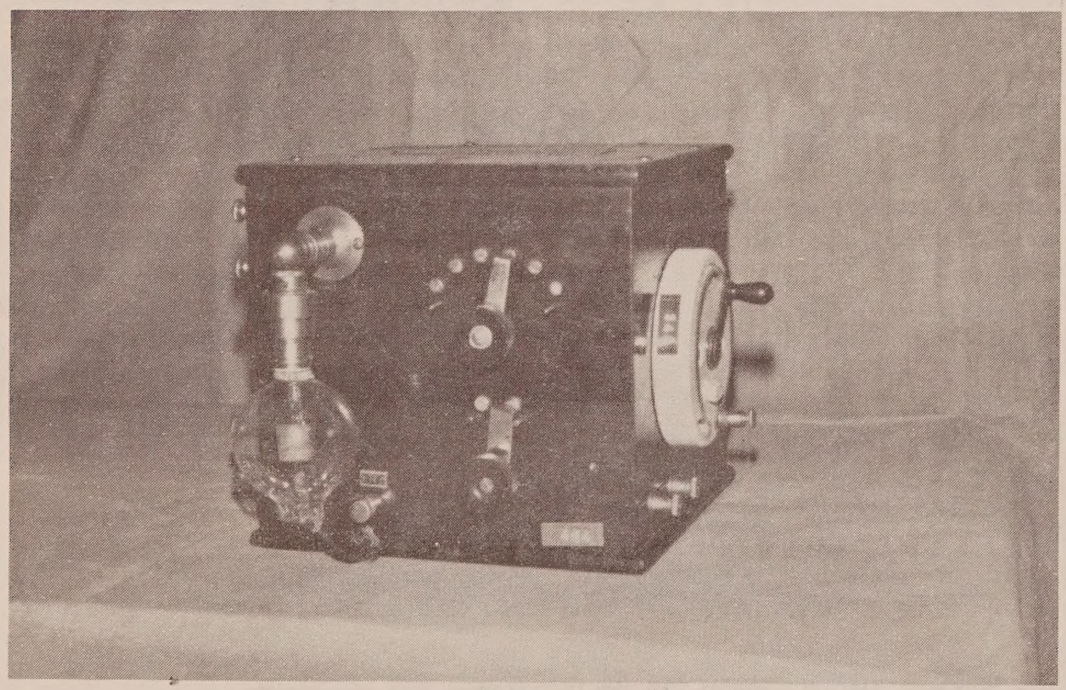
All post-war units were available with phonograph units by Thoreus and Garrad, and in addition some TV sets were built, but very little was produced in the 50's. Data on the actual phase-out is somewhat sketchy.

ODDS AND ENDS

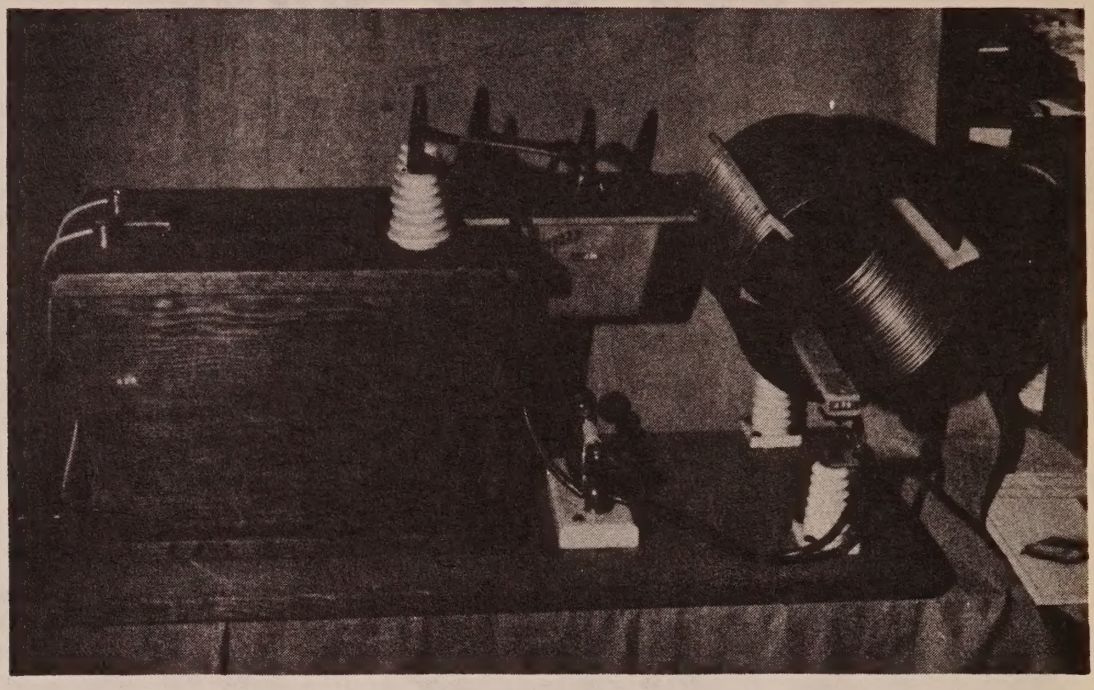
Photos furnished by Joseph Horvath



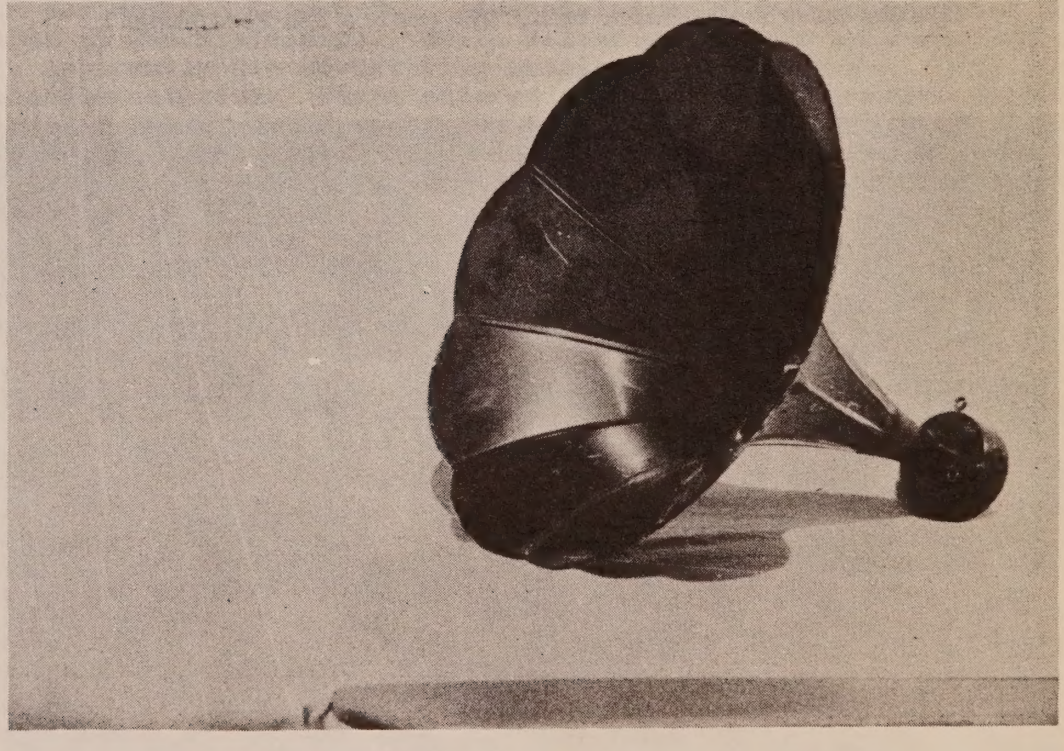
Joe Horvath (using the tin cups for earphones) clowns around with a 1923 Harkness Reflex that he built. The car is a 1921 Ford Model T.



De Forest RJ5



A working spark transmitter assembled by Joe Horvath, consisting of a 1/2 KW Packard 14,000 volt transformer, Manhattan spark gap, Wireless Specialty Co. Condensor, and a Manhattan sending key.



A Western Electric Model 300 single button carbon microphone.

The Collector's Ads

Wanted: Horn speaker in working condition, also small Atwater Kent cone speaker (metal case). Must be working. Henry Meyer, 2 Murphy Place, San Mateo CA 94402.

Wanted: Federal #15 phone plug, tapered switching plugs for instruments, Jewell grid leak tester, 1920's style 1 - 1/8" G. R. knobs, G. R. #316 tube tester, Weston #526 tube tester, tube cover for Radiola 26, box for switch tuned Lemco crystal set, Lemco #460 AF amplifier, brochure/instructions for Ultradyne L2. Have radios and instruments for trade. Lane Upton, 526 11th Ave., Salt Lake City, Utah, 84103.

Wanted: Chassis and loop for Radiola 28. Must be in good shape. Norman Berge, 1275 Quincy Drive, San Jose, CA. 95132

For Sale or Trade: Several reconditioned and guaranteed 1929 - 1941 consoles. Jim Cirner, 13366 Pastel Lane, Mtn. View CA 94040, phone 967 - 7672

For Sale: UH50 early VHF vacuum tube (using 75T anode). For Trade: Radiola IIIA., Wanted: Early television literature and gear, early wireless and crystal sets. Ken Miller, 1950 Cooley, Apt. 6204, Palo Alto, CA 94303.

WANT ADS ARE FREE TO ALL MEMBERS OF THE CALIFORNIA HISTORICAL RADIO SOCIETY. SUBMIT ADS TO THE EDITOR, KENNETH W. MILLER 1950 COOLEY, APARTMENT 6204, PALO ALTO, CA 94303. DUE TO THE NON-PROFIT STATUS OF OUR SOCIETY, WE CANNOT ACCEPT ADS OF A COMMERCIAL NATURE.

Notices

ARTICLES WANTED

We need articles for the journal. If you have any subject of interest please take pen in hand and become a published author!

SOUTHERN CALIFORNIA EDITOR

Our recent search for a Southern California editor proved unsuccessful. We would like to give more attention to the historically rich southern area of our state, but this requires more participation from that area. We are also looking forward to the time when interest justifies a Southern California meeting and swap meet.

SUMMER/FALL MEETING

Our next meeting is scheduled for late summer or early fall, watch for details!

MAGNAVOX
SINGLE DIAL Radio

1926 AD

Junior Model: $85 without accessories. Beautiful mahogany cabinet. Standard Magnavox 5-tube circuit.

The enduring type of radio—perfected and proved single dial

STYLE in radio sets is swiftly changing from awkward, dial-ridden boxes to the smart, handsome, refined *Magnavox* type. *Magnavox* single dial control, while primarily an operating advantage, also permits of dignified and enduring beauty. *Magnavox* is a set that will live with you a lifetime.

The *Magnavox* perfected single dial long ago proved that one dial does all that two or more dials can do, and does it better. And it didn't have to prove that a single dial set is infinitely easier to operate.

Not only is *Magnavox* the enduring type of radio, but it is the enduring name in radio. Fifteen years of conspicuous achievement, including creation of the original radio loud speaker, is an assurance of your lasting satisfaction.

Models from $260 to $75, including one that fits your phonograph and makes it a radio-phonograph. Let the *Magnavox* dealer demonstrate.